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| APPLICATION NO.                 | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------------|-------------|----------------------|---------------------|------------------|
| 09/885,729                      | 06/19/2001  | Manabu Sawada        | 12894-007001        | 5576             |
| 27572                           | 7590        | 09/28/2005           | EXAMINER            |                  |
| HARNES, DICKEY & PIERCE, P.L.C. |             |                      | JUNTIMA, NITTAYA    |                  |
| P.O. BOX 828                    |             |                      | ART UNIT            |                  |
| BLOOMFIELD HILLS, MI 48303      |             |                      | PAPER NUMBER        |                  |

2663

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/885,729

Applicant(s)

SAWADA ET AL.

Examiner

Nittaya Juntima

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 4-7, 11-13 and 19-22 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 8-10, 15-18, 23 and 24 is/are allowed.
- 6) ☒ Claim(s) 25-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/19/01, 3/10/05, 5/23/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. In order to provide a better understanding of the drawing and the invention, please correct the drawings to include the following:

- in Figs. 1, 6, 10, 14, 18, 20, 21, as applicable, items 1, 2, 3, 4, 5, 6, 11, 21, require descriptive text label, e.g. item 1 could be labeled as “stationary terminal;”
- in Figs. 1, 2, 6, 10, 11, 15, 14, 18, 20, 21a legend showing the relationships  $V_I < V_m < V_h$  and  $N_I > N_m > N_h$  should be included.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

2. Claims 1 and 25 are objected to because of the following informalities:
- in claims 1 and 25, "OFDM" should be spelled out to avoid any misinterpretation.
- Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-27 provides for the use of a communication method by the communication system, but, since the claim does not set forth any steps involved in the communication method, it is unclear what method applicant is intending to encompass. Claims 25-27 are indefinite where in claim 25 merely recites that "the communication is performed based on a communication method" without any active, positive steps delimiting how the communication/the communication method is actually practiced.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (USPN 6,542, 471 B1) in view of Ishizu (USPN 6,870,826 B1).

Art Unit: 2663

Regarding claim 25, as shown in Fig. 1, Ito teaches a communication system in which communication is performed between a stationary terminal (base station 50) and a mobile terminal (transmission equipment to be loaded in vehicle, i.e. a mobile station, 1, col. 6, ll 19-21), the communication system is characterized in that the communication (communication between the mobile station and the base station) is performed based on a communication method (Figs. 3 and 4) which varies according to a moving speed of the mobile terminal. See col. 3, ll 47-col. 4, ll 11. Ito fails to teach an OFDM system.

However, Ishizu teaches an OFDM system (OFDM/CDMA, col. 1, ll 17-40).

Therefore, it would have been obvious to one skilled in the art to modify the teaching of Ito such that it would be used under an OFDM system as recited in the claim. The suggestion/motivation to do so would have been to provide a multicarrier transfer system which many advantages such as excellent frequency selective fading suppression capability and reduction in the effects due to inter-code interference as taught by Ishizu (col. 1, ll 25-34).

Regarding claim 26, as shown in Fig. 1, Ito teaches that the mobile terminal (1, col. 6, ll 19-21) comprising:

- a transmitter-receiver (9) for communicating with the station terminal (50);
- a speed sensor (17) for detecting the moving speed of the mobile terminal; and
- a controller (30) for determining the communication method according to the detected moving speed and for controlling the transmitter-receiver based on the determined communication method. See col. 7, ll 23-25, 43-67.

Art Unit: 2663

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (USPN 6,542, 471 B1) in view of Ishizu (USPN 6,870,826 B1), and further in view of Kubo et al. ("Kubo") (USPN 6,456,827 B1).

Regarding claim 27, as shown in Fig. 1, Ito further teaches that the stationary terminal (50) comprising:

transmitter-receiver means (antenna on base station 50) for performing communication with the mobile terminal (1, col. 6, ll 19-21); and

means (80) for determining the communication method according to the detected moving speed and for controlling the transmitter-receiver means based on the determined communication method. See col. 9, ll 41-col. 10, ll 25.

However, the combined teaching of Ito and Ishizu fails to explicitly teach means for detecting the moving speed of the mobile terminal.

Kubo teaches means for detecting the moving speed of a mobile terminal (the speed estimation unit 1 in Fig. 1 at the base station, col. 4, ll 19-39).

Given the teaching of Kubo, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Ito and Ishizu to incorporate means for detecting the moving speed of a mobile terminal. The suggestion/motivation to do so would have been to enable the base station to estimate the moving speed of an opposing station, i.e. the mobile station, using either the transmission power control command or desired signal power as taught by Kubo (col. 4, ll 33-39).

***Allowable Subject Matter***

Art Unit: 2663

7. Claims 1-3, 8-10, 15-18, and 23-24 are allowed. The prior art alone or in combination fail to teach or make obvious on the following when considered in combination with other limitations in the claim: the control signal indicating a number of sub-carriers used in transmitting the data signal wherein the number of sub-carriers is reduced with accordance with increase of the moving speed as recited in the independent claim 1.


*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima  
September 22, 2005



RICKY NGO  
PRIMARY EXAMINER